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ABSTRACT

This research project investigated whether computer-enhanced reading improved the reading fluency of students. This study looked at 22 second grade students, ages seven and eight, from an elementary school located in a suburban community. The class was divided randomly into two equal groups. The researcher introduced all students to the book at the same time. The book was read aloud to the entire class and then each student read the book silently. An Informal Reading Inventory (IRI) was then administered to each student using text taken from the book title being used. After this initial introduction, one group read from the hardcopy of the book while the second group used the Living Books CD for the same title. The group using the hardcopy of the book read their book aloud to an adult. The group using the Living Books CD read along silently as the computer read the text to the student. The researcher then took one week to administer a second IRI to each student using the same text that was used in the initial IRI. The groups alternated for the second book title so that all students in the class had the opportunity to use both the written text and the Living Books CD. This study shows that when the students used the Living Books software their IRI scores were almost equal to the IRI scores of reading aloud to an adult. This indicates that when a classroom teacher does not have the extra set of hands of an aide or parent volunteer, she can use the computer to aid in reading practice. (Contains 21 references, and a figure and a table of data. Appendixes contain the letter to parents, permission forms, a list of books used, and the text of the books used.) (RS)

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ABSTRACT

A COMPARISON STUDY OF THE TRADITIONAL READING STRATEGY OF READING ALOUD WITH AN ADULT AND THE TECHNOLOGY BASED STRATEGY OF COMPUTERIZED TALKING BOOKS

An Action Research Project

Presented to the

Department of Teacher Education

Johnson Bible College

In Partial Fulfillment

of the Requirement of the Degree

Master of Arts in Holistic Education

by

Amy Leah Humble

July 2000

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ABSTRACT

Looking ahead to the 21st Century, it is quite clear that computers will play a vital role in the workplace, the home and the education of our children. This project focuses on the use of Talking Book software as a teaching aid in the subject area of reading. Talking Book software has the ability to use both visual and auditory effects, such as highlighting the words as they are spoken. This process helps to show the reader the relationship between the spoken word and its written form. The computer software can also model voice fluctuation and expression as the written word is read aloud. In a classroom of over twenty students and one teacher, having this computer provided assistance can be of value to both teacher and student. Talking Book software is not designed to replace traditional reading theories, but as a supplement to enhance reading skills.

As educators decide what software to implement into their classrooms, they will need to gauge the effectiveness of the software to determine its value to the student. This research project investigated whether computer enhanced reading improved the reading fluency of students. This study looked at twenty-two second grade students, ages seven and eight, from an elementary school located in a suburban community. The class was divided randomly into two equal groups.

It took approximately six weeks to conduct this study. The researcher introduced all students to the book at the same time. The book was read aloud to the entire class and then each student read the book silently. An IRI was then administered to each student using text taken from the book title being used. After this initial introduction, one group

read from the hardcopy of the book while the second group used the Living Books CD for the same title. The students spent no more than 20 minutes a day for three days with the book title. The group using the hardcopy of the book read their book aloud to an adult. The group using the Living Books CD read along silently as the computer read the text to the student. The talking book software highlights each word as it is read. The researcher then took one week to administer a second IRI to each student using the same text that was used in the initial IRI. The groups alternated for the second book title so that all students in the class had the opportunity to use both the written text and the Living Books CD.

This study shows that when the students used the Living Books software their IRI scores were almost equal to the IRI scores of reading aloud to an adult. This indicates that when a classroom teacher does not have the extra set of hands of an aide or parent volunteer, she can use the computer to aid in reading practice. As funding becomes tight for classroom aides and working parents have less time to volunteer at school, computer technology can be used to assist in various areas of instruction.

APPROVAL PAGE

This action research project by Amy Leah Humble is accepted in its present form by the Department of Teacher Education at Johnson Bible College as satisfying the action research project requirements for the degree Master of Arts in Holistic Education.

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TABLE OF CONTENTS

Page

ACKNOWLEDGMENTS ii

LIST OF TABLES v

LIST OF FIGURES vi

Chapter

1. INTRODUCTION 1

Significance of the Problem 1

Statement of the Problem 2

Definition of Terms 2

Limitations 3

Assumptions 4

Null Hypothesis 5

2. LITERATURE REVIEW 6

Reading Ability 6

Technology in the Classroom 7

Computer Assisted Reading 11

3. METHODS AND PROCEDURES 14

Subjects 14

Timeline 14

Test 15

Statistical Analysis 16

4. RESULTS 17

Analysis of the Data 17

5. SUMMARY, CONCLUSIONS, RECOMMENDATIONS 18

Summary 18

Conclusions 19

Recommendations 19

BIBLIOGRAPHY 22

APPENDICES 25

A. Letter Granting Permission to Conduct Research 26

B. Letter to Parents 27

C. Student Permission Slip 28

D. List of Books Used in This Study 29

E. Text Used for IRI - Book 1 30

F. Text Used for IRI - Book 2 31

LIST OF TABLES

Table Page

1. Comparison of Means of Computer Enhanced and Traditional Reading Practices . . . 17

LIST OF FIGURES

Figure Page

1. Comparison of Increase in IRI Scores with Living Book CD and Hardcopy Usage . . 20

Chapter 1

INTRODUCTION

Significance of the Problem

As we are about to embark on the 21st Century, we realize that technology is a part of our daily lives. Computers are used more now than ever in businesses, schools and homes. Many elementary students have access to computers. An informal survey of a 2nd grade class in a suburban elementary school shows that 85% of the students report having personal computers in their homes. There are also more computers being used in the elementary classrooms. Although educators have made the decision to install computer systems in the elementary classroom, the debate over effective use of those systems continues.

The educators at the school in which this project takes place strive to use the best teaching methods in all subject areas. One area of particular concern is the subject of reading. A goal for the 1999-2000 school year is to place a renewed emphasis on reading in all grade levels. To successfully function in society, we must be proficient readers. All elementary teachers devote at least part of their school day to the teaching of reading skills. Many times students are grouped according to their reading level, thus creating several reading groups needing the teacher's attention.

Most educators realize that no method of reading instruction will succeed with all students, so a variety of strategies are utilized to help students become competent readers (Gipe, p. 29). Beyond the basics of letter and sound recognition, some educators will emphasize phonics and/or word recognition. Some strategies to aid in these areas might

include the use of phonic worksheets, flash cards, and practice reading. In most situations, students are encouraged to spend time reading aloud. This practice is believed to aid them in becoming fluent readers (Smith, p. 67). Talking book software may be another tool that can be utilized to aid students in their development of reading skills.

In learning to read, the association of spoken word with its written form provides positive reinforcement to the reader (Lewin, p. 113). Computer software has the ability to use both visual and auditory effects, such as highlighting the words as they are spoken. This process helps to show the reader the relationship between the spoken word and its written form. The computer software can also model voice fluctuation and expression as the written word is read aloud. In a classroom of over twenty students and one teacher, having this computer provided assistance can be of value to both teacher and student.

Statement of the Problem

This study investigated whether computer enhanced reading improved the reading fluency of the students. As educators decide what software to integrate into their classrooms, they need to know if it will be of benefit to the students. A typical classroom will use a traditional based reading practice that includes having the student read alone or aloud to someone else, which aids in the process of becoming a fluent reader. Some books on CD also claim to aid students in becoming fluent readers. This study compares computer enhanced reading to traditional based reading practices.

Definition of Terms

CD or CD-ROM. The acronyms CD or CD-ROM stand for Compact Disc-Read Only Memory. This refers to the way in which the software used in this study is

packaged.

Software. Software refers to the programs which put computer hardware to work. In this study, software will refer to the Living Books titles used by the students.

Hardware. Hardware refers to the physical components of the computer, including keyboard, mouse, and monitor.

Living Books. Living Books is a registered trademark of Random House Publishing. In this study Living Books will refer to the CDs used by the students.

Talking book software. Talking book software refers to the book titles that are available on CD-ROM. The software replicates paper books on the computer monitor with the use of digitized sound and animation. For the purposes of this study, selected titles from the Living Books series will be used.

CAI. Computer-assisted instruction refers to any computer software that is used in the instruction process. For the purposes of this paper, it will refer directly to software programs related to reading instruction.

IRI or Informal Reading Inventory. An informal reading inventory is a nonstandard, direct measure to aid teachers in the assessment of a child's reading level. For the purpose of this paper, IRI will refer to the researcher's assessment of each student reading from a selection of text taken from the book.

Hardcopy. For the purpose of this study, hardcopy will refer to the physical book.

Limitations

One limitation of this study is that the sample is only as random as the principal was in his placement of pupils in the classroom. The students were divided so that the

three second grade classes were evenly distributed with student ability in each class ranging from above average to below average.

Another limitation is in the limited number of students for the study; there are 22 students in the classroom studied. There are three second grade classes, but this researcher worked with only one of the second grade classes. This limited the sample size.

The selection of book titles was limited to what was available in this particular classroom.

This study compared traditional practices with computer technology use in the area of early elementary reading fluency skills. The methodology of these two reading strategies differ. The traditional strategy has the student reading orally to an adult as a means of practicing their reading fluency skills. The talking book software has the student learning reading skills through audio and visual means. The students look at the highlighted word as it is read to them by the computer. The student does not practice oral reading with the talking book software; however, all students in this study practiced oral reading on other book titles during reading group time at school. The students were also encouraged to read aloud at home and record their reading in a weekly journal signed by their parents. Although the researcher could not control what books the students read at home, they were asked not to read the book titles being used for this study.

Assumptions

This researcher assumed that the ability level of the students was normally distributed in the class.

The students had equal opportunities to work with both the written text and the computer software.

The researcher also assumed that all students participating in the study had equal ability to use the computer hardware and software.

Null Hypothesis

There will be no significant difference at the .05 level in the reading fluency of children, as measured by the informal reading inventory, when they use the computer assisted software to practice reading skills compared to those using traditional reading practice.

Chapter 2

LITERATURE REVIEW

Reading Ability

Educators everywhere are concerned with the reading ability of their students. Some states have had a wake-up call when they realized their students placed last in the reading exam section of the National Assessment of Educational Progress from 40 participating states. The results posted from the 1996 reading exam section of the National Assessment of Educational Progress listed both California and Louisiana in last place in a test of 4th grade students from forty states (Jonson, p. 90). As a result of these findings, California is amidst a massive state-wide effort to shift the focus of its reading curriculum.

Many other states are also looking to boost reading achievement. School districts, county offices of education, and professional organizations are offering a plethora of programs to assist elementary teachers in the refocus of their classroom reading instruction. It is obvious that we need a variety of teaching strategies to help our students become fluent, competent readers (Jonson, p. 90).

As teachers are well aware, researchers and others have long disagreed about the best way to teach reading (Samuels and Farstrup, p. 125). Experts from diverse ends of the pedagogical spectrum recognize the importance of fluency (Samuels and Farstrup, p. 126). As a result of extended practice in reading, a student learns how to decode the printed words with significantly less attention being given to the individual sounds of each letter forming the word (Samuels and Farstrup, p. 132). Chall puts reading fluency

in the second stage of her reading development theory (Chall, p. 18). She believes that through repeated readings the student gains courage and skill in using context and thus gains fluency (Chall, p. 19). This theory supports repeated readings of the same text as a means of gaining reading fluency skills.

Some of the same reading problems encountered by children are also encountered by adults with low functional literacy. In their study, McKane and Greene discuss the need to use elementary reading strategies to teach reading skills to low functioning adults (McKane and Greene, p. 332). Their study makes a case for using computer assisted instruction to provide repeated reading practice for adults. They believe that computers offer an ideal environment for such training (McKane and Greene, p. 333). This same advantage can transfer to the elementary classroom. The computer can provide guided assistance to some students while the teacher spends time in instruction of other students.

The research shows that we need a renewed focus on the teaching of reading skills. Educators must look to various uses of technology to aid them in daily instruction. The ability to read is a vital skill that all students must master in order to function in today's society.

Technology in the Classroom

Much has also been written concerning the use of technology in the classroom. In the last half of the 1980's microcomputers became available at prices that made it possible to bring them into public school classrooms. There are numerous issues involved when technology is introduced into the school curriculum (Ediger, p. 137). Teachers strive to use the computer software in a way that will aid in the education of

their students. Rapid improvements are being made in the development and use of technology (Ediger, p. 137).

Technology has played a role in changing the reading curriculum (Ediger, p. 138). In the later 1970's there were four kinds of software available for reading instruction (Ediger, p. 138). These options included drill and practice, games, simulation and programmed reading. While these programs had valid criticisms, they did seem to spark educators in seeing the potential applications computer technology could have on instruction.

Today we have a myriad of functional software at our fingertips. There are phonics focused software programs that assist pupils in moving forward in small sequential steps (Ediger, p. 138). Technology also holds much promise for students that are developing reading readiness (Ediger, p. 139). CD-ROM software contains that which is rich in information, multimedia, and hyperlinks (Ediger, p. 141). The excitement of reading through technology use might well enhance reading achievement substantially in personal reading as well as future skills (Ediger, p. 143).

As advances in technology continue, new capabilities challenge and enable designers to develop increasingly elaborate products. These changes have a potential to impact instructional variables that would influence the effectiveness of computers as instructional media (Sales, et al., p. 41). Computers can effectively support meaningful learning and knowledge construction in higher education as cognitive amplification tools for students (Jonassen, et al., p. 32). Several studies provide evidence of the positive effect that using technology in the classroom has on the students.

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A meta-analysis by Christmann, Badget, and Lucking compared the academic achievement of students in grades six through twelve who received either traditional instruction or traditional instruction supplemented with computer- assisted instruction across eight curricular areas. Christmann, et al., concluded that although CAI appears conducive to increasing the academic achievement, its effects seem to have demographic variations (Christman, et al., p. 291). Further research is needed to determine whether CAI applications should be altered to increase achievement among all students.

Many other studies provide positive support for the use of technology in the classroom. A study by Roth and Beck assessed the effectiveness of computer programs for improving word recognition and decoding skills. Two microcomputer programs were administered to three fourth-grade classes over an eight month period, and the cumulative and specific effects of the two programs on components of reading performance were assessed (Roth and Beck, p. 203). Assessment was relative to a control group that did not receive any supplemental reading instruction. This study showed a substantial increase in word recognition and decoding abilities, and a substantial improvement in comprehension at the word and sentence level (Roth and Beck, p. 197).

Another study of two computerized vocabulary games revealed that the participants improved their knowledge of the meanings of reviewed words using the strategies required in the games (Benne and Baxter, p. 256). The participants of this study were forty-two undergraduate students at the Georgia Institute of Technology (Benne and Baxter, p. 248). The students were divided between the two games. Each participant took the SAT, ACT, and three high school pre-tests at the beginning of the

experiment. The students then spent about one hour a day for ten days on their respective programs. The two programs were not compared; pre-test and post-test scores were used to determine the significant difference. These particular computerized training systems did have some benefit for the students (Benne and Baxter, p. 257).

Studies have also shown the positive effects of computer-assisted instruction with children with learning disabilities. The article by Torgesen and Barker provides examples of ways that computer-assisted instruction can help children with learning disabilities learn to read more effectively (Torgesen and Barker, p. 76). Perhaps the most promising of all computer assisted aids for reading acquisition involves computer-assisted text reading that allows children with reading difficulties to receive feedback on words that are difficult for them (Torgesen and Barker, p. 85). There are a large range of talking books that provide high quality graphic images as well as digitized speech for every word in the text. This type of program should go a very long way toward providing highly supported reading practice for children with learning disabilities (Torgesen and Barker, p. 85). This article provides support for the use of technology for children on all learning levels.

Computer use in the classroom may also provide a means of positive motivation. The motivational features of the use of technology are certainly worth harnessing and exploiting to the fullest. The article, "It's My Turn! Part II Motivating Young Readers Using CD-ROM Storybooks", discusses the positive influence CD-ROM storybooks can have on young readers (Glasgow, p. 18). Glasgow believes that CD-ROM storybooks are useful for teachers to accommodate individual differences in student reading abilities and

at the same time focus on interest and enjoyment (Glasgow, p. 18). Glasgow reports that the personal involvement required in interactive stories helps children develop their imagination, gain a sense of wonder, and actively participate in the literary experience (Glasgow, p. 19).

In her study of low functioning readers, Lewin noted that "children were very motivated by the use of technology. They were very keen to participate in the study and talked enthusiastically to their teachers about what they had done" (Lewin, P. 125). Teachers are always eager to find ways to motivate students to read more. Teachers must not overlook the use of technology to encourage students. This type of motivation may be especially useful for students with emotional and behavioral difficulties. Lewin noted that the child with behavioral difficulties did pay more attention to the animations, discovering early in the intervention period that the animations could be activated (Lewin, p. 126).

Research shows that computer companies are producing software that can be utilized by the students to enhance skills being taught in the classroom. Various software is available for use by the elementary students. Educators should have various types available in their classrooms.

Computer Assisted Reading

Several studies have been conducted on the use of various computer software packages in the instruction of reading. The advantages in using computers in reading instruction are numerous (Ediger, p. 138). A child may be stimulated aurally and visually through the utilization of technology, as well as challenged by the complexity of the tasks

involved. Hence a beginning reader may be encouraged to take note of visual and phonic cues (Lewin, p. 113). The reading curriculum has certainly been changed or modified due to technology. The use of this technology is a way of emphasizing modern approaches in teaching (Ediger, p. 138).

A study by Arroyo examined the effect the extended use of computers has on reading achievement. The subjects of this study were seventh grade students attending an elementary school in South Chicago (Singhal, p. 4). The experimental group was subjected to an intensive computer-assisted instruction program while the control group received no computer training. The results of the Iowa Tests of Basic Skills indicated a statistically significant increase in reading achievement of the students who used computers.

The article, "Reader Interface of Computer-Based Reading Environment", by Chiou, discusses the positive influence of a computer-based reading environment. Chiou defines a computer-based reading environment as a reading environment that has computer-based reading materials and computer-based reading tools to support the reader's reading activity (Chiou, p. 122). It is Chiou's belief that computer technology should be used to support individual-oriented reading, and that this should include visual tools, auditory tools, and manipulative tools (Chiou, p. 130).

A study done by Reitsma compared guided reading, reading-while-listening, and independent reading with computer-generated speech feedback available for students to use at will (Reitsma, p. 219). The study seems to indicate that when students take an active role in the reading process, more gains are made in reading proficiency (Reitsma,

p. 231). It appears that the speech feedback contributed to the student learning to read the target words. This seems to indicate that the use of the computer can be almost as beneficial as reading aloud to an adult (Reitsma, p. 232).

Beginning readers need to correlate the spoken word with its written form. Computer software, such as talking books, can provide this needed correlation for readers. Lewin describes a study done to evaluate the use of talking books software in a British school (Lewin, p. 111). This was a non-comparative exploration of the use of talking book software with children whose reading ages were considerably below their chronological age (Lewin, p. 121). The study evaluated improvements in reading ages, phonic knowledge, and the use of reading strategies based upon the results of both normative and criterion-referenced tests.

The use of the computer seemed to give the students a sense of independence (Lewin, p. 128). The use of the software provides the opportunity for regular practice at little cost in terms of input time from the teacher. Results of the study have shown there to be improvements in reading ages above that usually expected during the time period, as well as signs of improvement in attitude toward and confidence in reading (Lewin, p. 129).

Chapter 3

METHODS AND PROCEDURES

Subjects

This study looked at twenty-two second grade students, ages seven and eight, from an elementary school located in a suburban community in East Tennessee. While the intelligence levels of individual students vary, none of these students have been identified for resource or special education services. The group has varying social backgrounds. All students in this particular class were participating in a weekly reading program that consists of reading aloud at home for 60 minutes a week. The class was divided randomly into two equal groups. Because each pupil in the classroom has an assigned number, a number generator was used to make two groups of 11 students.

Timeline

It took approximately six weeks to conduct this study. The researcher introduced all students to the book at the same time. The book was read aloud to the entire class and then each student read the book silently. An IRI was then administered to each student using text taken from the book being used. After this initial introduction, one group read from the hardcopy of the book while the second group used the Living Books CD for the same title. The students spent no more than 20 minutes a day for three days with the book. The group using the hardcopy of the book read their book aloud to an adult. The group using the Living Books CD read along silently as the computer read the text to the student. The talking book software highlights each word as it is read. The researcher then took one week to administer a second IRI to each student using the same text that

was used in the initial IRI. The groups alternate for the second book title so that all students in the class had the opportunity to use both the written text and the Living Books CD.

Test

The testing used in this study was an informal reading inventory. The IRI is probably the most widely known non-standardized, direct measure (Gipe, p. 108). Being an individually administered, non-standardized instrument enables the teacher to assess reading strategies that can only be assessed through direct observation (Gipe, p. 108). The validity of the IRI depends on the purpose for which it will be used. If the test is being used to place students in an appropriate reader, then a basal series publisher constructed test would be more valid (Gipe, p. 109). Because results from these IRIs will only be used as a means of determining a student's general reading fluency, publisher constructed tests were not necessary.

To be a valid measure, a test must measure what it claims to measure. For content validity, the test must be compared with the course content (Rubin, p. 21). Because the IRIs used passages from the texts being read, there is direct relation of content. This testing measure is an informal diagnostic test. Informal tests are excellent in giving quick feedback (Rubin, p. 151). They can also be structured to fulfill a specific need, such as in the case of this study. The IRIs were used to look for increase in the reading fluency of a student using a given selection of text.

An IRI was administered to each student using passages from the book titles being read. A passage of approximately 140 words was selected from each book title as

suggested by Steve Rutledge, a supervisor in the teaching techniques laboratory at the University of Illinois (Rutledge, http://lrs.ed.uiuc.edu/students/srutledg/iri_cb.html). To select the text for the IRI, the researcher started at a section of text and counted approximately 140 words. The researcher administered an IRI to each student before they worked with the book title and again upon completion of 60 minutes of reading or CD usage on the same title. The IRIs were then scored by subtracting the number of errors from the total number of words in the passage, dividing that by the total number of words, and then multiplying that by 100. A mean score was then calculated for all IRIs done after the printed text reading and for all IRIs conducted after the Living Book CD usage. These mean scores were then compared for any significant difference.

Statistical Analysis

The researcher used the t-test to compare mean scores. By comparing the mean scores, the researcher can determine if there is a significant difference in the child's reading fluency when using talking book software as compared to traditional reading practices. In this study, the two-tailed t-test was used because it was uncertain about which average would be larger.

Chapter 4

RESULTS

Analysis of the Data

The IRI scores calculated after the traditional reading practice and the IRI scores calculated after the computer enhanced reading practice were entered into the SPSS software for analysis. After completing the paired sample t-test for this data, the researcher found no significant differences at the .05 level of significance. The t-test compared traditional reading practices with computer enhanced reading practices. The mean scores had a difference of only .16. Refer to Table 1. The hypothesis stated that there would be no difference at the .05 level in the reading fluency of children when they used the computer assisted software to practice reading skills as compared to those using traditional reading practices. The hypothesis was retained.

TABLE 1

Comparison of the Means of
Computer Enhanced Reading Practice and
Traditional Reading Practices

Groups	N	Mean	Mean Difference	Std. Error of Means	t ratio	Sig. 2-tailed
Traditional Reading	23	98.40				
			.16	.45	.358	.723*
Computer Enhanced Reading Practice	23	98.24				

*Not Significant

Chapter 5

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

Summary

This study compared traditional reading practices with computer enhanced reading practices as they effect early elementary reading fluency skills. During the course of this research, each student in the class worked with the Living Book CD on a computer and also read aloud with an adult. A book title was introduced to the entire class. The book was read aloud one time. The class of 24 students was then divided into two groups. Because each student had an assigned number, a number generator was used to form the two groups.

One group read from the hardcopy of the title. They spent no more than 20 minutes on three days reading the book aloud to an adult. The second group used the Living Books CD for the same book title. They used the "Read To Me" option on the CD. With this option the text is read aloud to the student as each word in highlighted. The students worked no more than 20 minutes with the Living Book CD on three days. Informal Reading Inventories were then administered to each student. Another book title was chosen and the two groups switched. The group that had previously used the hardcopy used the Living Books CD and the group the had previously used the Living Books CD now used the hardcopy. Another IRI was administered to all students.

The IRI scores for the hardcopy were entered as the traditional reading practice scores and the IRI scores for the Living Books CD were entered as the computer

enhanced reading scores. A paired sample t-test was then run on the scores. The results did not find a significance at the .05 level.

Conclusions

While this particular study did not find a significant difference, more studies are needed before deciding if computer enhanced reading is as effective on reading fluency as the traditional oral practice of reading skills. This study shows that when the students used the Living Books software their IRI scores were almost equal to the IRI scores of reading aloud to an adult. This indicates that when a classroom teacher does not have the extra set of hands of an aide or parent volunteer, she can use the computer to aid in reading practice. As funding becomes tight for classroom aides and working parents have less time to volunteer at school, computer technology can be used to assist in various areas of instruction.

Recommendations

This researcher noticed that with this particular class, the students seemed to enjoy using the software more than reading with an adult. The students were eager to use the computer and often wanted to continue when the 20 minute time limit was up. None of the students asked to spend more time reading aloud when they finished the hardcopy one time through. Even when plenty of time remained, the students choose to return to their desks.

One area of future study would be in the attitudes of the students toward reading a book title given the hardcopy versus the Living Book Software. Reading fluency is certainly effected by the readers attitude toward reading. The more the student enjoys the

reading process the more willing he will be to practice his skills. Perhaps a future study could note the attitudes of the students toward reading with the computer and reading with an adult. Students would need to be studied over the course of the school year to see if their reading fluency improved with regular computer usage.

An informal look at beginning and ending IRI scores for students suggests that many students showed a higher increase in IRI scores when using the Living Books software. An initial IRI was given to the students during the course of this study. These scores were not needed for the testing of this researcher's hypothesis, but did provide an interesting basis for future study. Figure 1 shows a comparison of a few sample beginning and ending IRI scores obtained during this study. Many students showed a higher increase in their individual IRI score when using the Living Books CD.

Student	Begin IRI Score	End IRI Score	Type	Increase
3	(Book 1) 93.06	100	Living Book CD	6.94
	(Book 2) 99.29	100	Hardcopy	.71
8	(Book 1) 90.28	98.61	Living Book CD	8.33
	(Book 2) 93.57	96.43	Hardcopy	2.86
22	(Book 1) 85	97.14	Living Book CD	12.14
	(Book 2) 94.44	99.31	Hardcopy	4.87

FIGURE 1

Comparison of Increase in IRI Scores
Between Living Book CD and Hardcopy Usage

A future study would be to look at beginning and ending IRI scores of individual

students. The focus would be on the increase in reading fluency of individual students. A base IRI would be administered to the student before working with the book title. The student would then work with the title on Living Books CD and another IRI would be given. The increase in the IRI score would be noted. The student would then be given another book title to work with. Again an IRI would be given before the student reads the text aloud to an adult. Another IRI would be given when the student finished work with the hardcopy. The increase in the IRI score would be noted and then compared with the increase in the IRI score using the computer. This process would need to be done for several book titles to see a definite pattern.

Based on the results of this six-week study, this researcher would implement a plan of regular usage of the Living Books CD in the classroom. Although the Living Book Software usage did not prove to be a better choice for reading practice, it did prove to be equally as beneficial to reading fluency as reading aloud with an adult. Students should be allowed to spend time with both the hardcopy and software version of various books. All means possible should be used to instill a love of reading in these young readers.

BIBLIOGRAPHY

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BOOKS

Chall, Jeanne S. (1983). Stages of Reading Development. New York: McGraw-Hill Book Company.

Gipe, Joan P. (1998). Multiple Paths to Literacy. New Jersey: Merrill.

Rubin, Dorothy. (1982). Diagnosis and Correction in Reading Instruction. New York: Holt, Rinehart and Winston.

Samuels, S. Jay & Farstrup, Alan E. (Eds.). What Research Has to Say About Reading Instruction. Delaware: International Reading Association.

PERIODICALS

Benne, Marcie R. & Baxter, Kathy K. (1998). An Assessment Of Two Computerized Vocabulary Games Reveals That Players Improve As A Result of Review. Journal of Educational Computing Research, 18(3), 245-258.

Chiou, Guey-Fa. (1995). Reader Interface Of Computer-Based Reading Environment. International Journal of Instructional Media, 22(2), 121-133.

Christmann, Dr. Edwin, Badgett, Dr. John & Lucking, Dr. Robert. (1997). Microcomuter-Based Computer-Assisted Instruction Within Differing Subject Areas: A Statistical Deduction. Journal of Educational Computing Research, 16(3), 281-296.

Ediger, Dr. Marlow. (1998). Issues and Technology Use in Reading Instruction. Reading Improvement, 35(3), 137-144.

Glasgow, Jacqueline N. (1996-97). It's My Turn! Part II Motivating Young Readers Using CD-ROM Storybooks. Learning and Leading With Technology, 24, 18-22.

Jonassen, David H., Carr, Chad & Yueh, Hsiu-Ping. (1998). Computers as Mindtools for Engaging Learners in Critical Thinking. Techtrends, (March), 24-32.

Jonson, Kathleen F. (1998). The Role of Independent Reading in a "Balance" Reading Program: Re-Thinking California's Reading Initiative. Reading Improvement, 35(4), 90-96.

Lewin, Cathy. (1997). "Test Driving" CARS: Addressing the Issues in the Evaluation of Computer-Assisted Reading Software. Journal of Computing in Childhood Education, 8(2/3), 111-132.

McKane, P. Frank & Greene, Barbara A. (1996). The Use of Theory-Based Computer-Assisted Instruction in Correctional Centers to Enhance the Reading Skills of Reading-Disadvantaged Adults. Journal Educational Computing Research, 15(4), 331-344.

Reitsma, Pieter. (1988). Reading Practice for Beginners: Effects of Guided Reading, Reading-While-Listening, and Independent Reading with Computer-Based Speech Feedback. Reading Research Quarterly, 23(2), 219-235.

Roth, Steven F. & Beck, Isabel L. (1987). Theoretical and Instructional Implications of the Assessment of Two Microcomputer Word Recognition Programs. Reading Research Quarterly, 22(2), 197-205.

Sales, Gregory C., Tsai, Benhong & MacLeod, Robert. (1991). The Evolution of K-12 Instructional Software: An Analysis of Leading Microcomputer-Based Programs from 1981-1988. Journal of Computer-Based Instruction, 18(2), 41-47.

Torgesen, Joseph K. & Barker, Theodore A. (1995). Computers As Aids In The Prevention And Remediation Of Reading Disabilities. Learning Disability Quarterly, 18(Spring), 76-87.

ERIC

Singhal, Meena. (1998). Using Computers as Reading Instructional Tools: Applications and Implications. (ED419225). Arizona: Citing Arroyo,C. (1992)What is the effect of extensive use of computers on the reading achievement acores of seventh grade students? (ED353544).

Tillman, Gail. (1995). Will Implementing Reading Computer Assisted Instruction Compared to Traditional Reading Instruction Produce More effective Comprehension at the Elementary School Level? (ED392025). New York.

WORLD WIDE WEB RESOURCES

Rutledge, Steve. (1998) Informal Reading Inventory. Retrieved August 20, 1999, http://lrs.ed.uiuc.edu/students/srutledg/iri.html.

Schrock, Kathy. (1995) Fry's Readability Graph: Directions for Use. Retrieved August 29, 1999, http://school.discovery.com/schrockguide/fry/fry.html.

APPENDICES

APPENDIX A

KNOX COUNTY SCHOOLS
ANDREW JOHNSON BUILDING

Dr. Charles Q. Lindsey, Superintendent

October 29, 1999

Ms. Amy Leah Humble
327 Fallen Oak Circle
Seymour, Tennessee 37865

Dear Ms. Humble:

You are granted permission to contact appropriate building-level administrators concerning the conduct of your proposed research study entitled, "A Comparison Study of the Traditional Reading Strategy of Reading Aloud with an Adult and the Technology Based Strategy of Computerized Talking Books." In the Knox County schools final approval of any research study is contingent upon acceptance by the principal(s) at the site(s) where the study will be conducted.

In all research studies names of individuals, groups, or schools may not appear in the text of the study unless *specific* permission has been granted through this office. The principal researcher is required to furnish this office with one copy of the completed research document.

Good luck with your study. Do not hesitate to contact me if you need further assistance or clarification.

Yours truly,

Samuel E. Bratton, Jr.

Samuel E. Bratton, Jr., Ed.D.
Coordinator of Research and Evaluation
Phone: (423) 594-1740
Fax: (423) 594-1709

Project No. 016

P.O. Box 2188 • 912 South Gay Street • Knoxville, Tennessee 37901-2188 • Telephone (423) 594-1800

APPENDIX B

November 1999

Dear Parents:

As you already know, Mrs. Carol Jordan gets the opportunity to have Amy Humble, an intern from Johnson Bible College, working in her classroom most of the school year. As one of her requirements, Mrs. Humble must conduct some research for her master's project. She has chosen to work with Mrs. Jordan's class in reading.

The project will consist of enriching the reading curriculum using talking book software on the computer. The students will have the opportunity to read selected books in print as well as on the Living Books CD. This will provide both traditional and technology based practice for the children in reading.

Your child will participate as a subject for only six weeks during his or her regularly scheduled school day. The students will be divided randomly into two equal groups. This will be done only because of the limited copies of the materials. All students will have equal opportunities to use the printed books and the Living Book CD.

Mrs. Humble is excited about working with your child on this project, because she feels that computer enhanced instruction can aid your child in becoming a better reader. We will need to know if your child will be allowed to participate in this study. Please complete the attached permission slip and return it to your child's teacher. In order to proceed with this project, Mrs. Humble must have every student that is participating return the permission slip. Thank you for your cooperation.

Sincerely,

_____ _____

Pat Robinette Carol Jordan

_____

Amy Humble

APPENDIX C

PERMISSION SLIP FOR PARTICIPATION IN A RESEARCH PROJECT

Child's Name_____

Please check one of the following.

_____ My child has permission to participate in the research project with Mrs. Humble.

_____ My child does not have permission to participate in the research project with Mrs. Humble.

Comments:_____

_____ _____

_____ _____

Parent's Signature Date

APPENDIX D

LIST OF BOOKS USED

Book 1 *Green Eggs and Ham*, by Dr. Suess

Book 2 *Little Monster at School*, by Mercer Mayer

I do not like
green eggs and ham.
I do not like them, Sam-I-am.

Would you like them in a house?
Would you like them with a mouse?

I do not like them in a house.
I do not like them with a mouse.
I do not like them here or there.
I do not like them anywhere.
I do not like green eggs and ham.
I do not like them, Sam-I-am.

Would you eat them in a box?
Would you eat them with a fox?

Not in a box.
Not with a fox.
Not in a house.
Not with a mouse.
I would not eat them here or there.
I would not eat them anywhere.
I would not eat green eggs and ham.
I do not like them, Sam-I-am.

Would you? Could you?
In a car?
Eat them! Eat them!
Here they are.

Early in the morning, Mom wakes me and says, "Get up, Little Monster, it's time for school."

I put on my overalls and go downstairs to breakfast. Pop says, "What will you have this morning, eggs or cereal with milk?"

After breakfast, I brush my teeth and get ready to go. I have lots of school stuff to carry with me.

Mom walks me to school. Some of my friends come on a bus.

The first thing we do is sing a morning song and then we practice our letters. Yally makes some of his letters backwards and then he gets mad. But I help him.

Counting comes next. We count from one to twenty. Little Laff is the best counter in the class and that makes Yally mad, too. Yally wants to be the best counter in the class.